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TIME AND SCHOOL LEARNING

BY

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Declaration

This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation, this dissertation from the work, or works, of other people has been cited and referenced.

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Abstract

This study, conducted at Poor Man's Friend Secondary School (fictitious name), describes the use of Time Tabled School time. In fact, it quantifies the Time spent on Instruction and relates it to Learner Engagement-rates. Cumulatively, these variables impact on Learner Outcomes.

My assumptions were, first, teachers hold the key to the efficient use of time as a learning resource because it involves teaching methodology and classroom management; and second, there is a relationship between learner engaged-time and outcomes. The key question was, how can Poor Man's Friend Secondary optimise Learners' Engaged-time?

The first step was to record the current use of time. For this purpose, I adapted the fieldwork instruments of Huitt & Caldwell's *Time and Instructional Improvement: a Research and Development based approach* (in Anderson, 1984:204).

Four Time variables, (1) Time Tabled School time, (2) Classroom time, (3) Instructional time, (4) Engagement rate and the number of learners not receiving instruction were recorded, over fifteen complete observations by grade and subject.

My two areas of interest were first, the need to provide a school-based explanation for the poor grade 12 results (58%) and second, to monitor the effect of the Outcomes Based Curriculum in Grade 8 (2001) on the use of instructional time.

The results showed that about 16 weeks of the Total Time Tabled School Time was lost annually. Added to this, was the average engagement rate of 51,4% and the 74 learners not receiving instruction over the period the study was conducted. On average only 12 weeks of school time is spent on-task. These findings make it evident why learner outcomes are so poor.

Therefore, the recommendations focus on the efficient use of time as a learning resource at Poor Man's Friend Secondary School.

CHAPTER 1
INTRODUCTION TO TIME AND SCHOOL LEARNING

1.1 Aims

The Western Cape Education Department's policy introduced since 1999 to extend the school day to 35 hours for learners and 40 hours for teachers was based on the assumption that an increase in the total allocated school time would improve learners' 'opportunity to learn'. This research report investigates why this has apparently not happened at Poor Man's Friend Secondary. [1]

Therefore, the first step was to gather information on current classroom conditions and processes. The research data collected focused on four key classroom and teaching variables: (1) Total Allocated Time Tabled Time, (2) Classroom Time, (3) Instructional Time and (4) Learners' Engagement-Rate. The collection of the research data from grades 8 -12 in Math, English, Afrikaans, Biology, Accounting, Typing and Physics in a common unit, time, was to allow comparisons in the different use of time between (1) the junior and senior grades and (2) in the Languages and Sciences.

An analysis of this data provided the basis for recommendations to optimise the use of time as a learning resource at Poor Man's Friend Secondary.

[1] The name has been changed.

1.2 Rationale

Research on how allocated time is used by teachers and learners is useful to indicate how time is wasted and the cumulative effects of time wastage.

Given the correlation between learner-engaged time and outcomes, it is necessary to identify the areas of improvement of time use – to optimise instructional time and learner-engaged time and reduce the failure rate.

The relationship between instruction and learner engaged-time suggests that instruction can be improved to optimise learner-engaged time. The need for professional self-renewal is imperative given the implementation of the revised Outcomes Based (OBE) curriculum into grade 8 in 2001 and into other grades on a year by year basis.

The testing of time-related variables in the school-community context which the teacher is located, enabled the teacher-as-researcher to gather data which is valid and reliable for that particular school.

The most important benefit of the project was the fact that it enabled the teacher-researcher to become a conscious agent in the enhancement of her own learning about teaching - thereby pro-actively promoting self-appraisal and professional renewal.

1.3 The School Context

The school under study is a former so-called "Coloured", House of Representatives school, situated in a sub-economic area where unemployment is rife.

Consequently, Poor Man's Friend Secondary is characterised by a high incidence of crime/violence and substance abuse. The school has a high failure rate (42%) and drop out rate (23%), a continuous drop (on average 11% annually) in new enrolments, and a big intake (of about 50%) of linguistically disadvantaged learners from the townships. Cumulatively these factors contribute to a counter-teaching and learning culture.

Moreover, because of the declining numbers (from 950 learners in 1992 to 450 in 2001) there is an on-going rationalisation/redeployment of teachers, which has aggravated job insecurity at Poor Man's Friend Secondary. The regular decrease in enrolments and high drop out rate has resulted in 26 teachers out of 43 being redeployed/retrenched since 1992. At the end of the second term in June 2001 a further three staff members were redeployed/retrenched. Another teacher resigned at the end of 2001.

Therefore, a new school timetable has had to be drawn up because the remaining teachers had to absorb the classes of the teachers that left. As a result, the teachers' workloads have increased dramatically because they now have more and bigger classes (average 40-60 learners) to manage and teach.

This has impacted negatively on classroom discipline because the incidence of disruptive behaviour, late coming and truancy increased and has resulted in more instructional time being used for management and control activities.

These challenges contribute to teacher burnout – which has been exacerbated by the Western Cape Education Department's (WCED) new policy on teachers' leave. According to the latest policy the school must pay for a substitute teacher because the school holidays are now counted as leave.

At this school, only 60% of the parents pay the school fees of R300 per year and therefore the school cannot afford to pay for substitute teachers. These contextual factors cumulatively, have contributed to a high teacher absentee (sick leave) rate, which has a chain reaction: a loss of learning time for learners, unscheduled school closings and a high failure rate.

One response of the Western Cape Education Department (WCED) to perceived poor results was to extend the school day (in 1999) to 35 hours for learners and 40 hours for teachers. The premise was that an increase in the total allocated school time would improve 'opportunity to learn'. Despite the increase in the total allocated school time, learner outcomes remained poor at Poor Man's Friend Secondary. The key question then is, why did the increase in allocated time not improve learners' outcomes?

The answer may lie in HOW allocated school time is used. The World Bank's (WB) recommendation that the use of time impacts on the quality of education confirms this. They elaborate:

> "Three factors determine the annual number of hours allotted to study any subject in school: the length of the official school year in hours, the proportion of these hours assigned to the subject, and the amount of time lost through school closings, teacher/learner absences, and miscellaneous interruptions" (World Bank, 1991:18-19, in Reimers, 1993: 203).

Meyer's education policy research discusses 'time as a learning resource' by applying these findings to particular South African schools. She says that "time is not generally recognised as a resource in education, yet is by far the most costly resource (seen in terms of expenditure on personnel in the education budgets)". She endorses the WB's assertion that the efficient use of time is a prerequisite for improving quality/outcomes: "efficiency is a concept contingently related, but conceptually distinct from quality. Efficiency relates to the availability and utilisation of resources in any given enterprise and can therefore increase or restrict the scope for quality" (1996:2).

She illustrates the contingent relationship between efficiency and quality with reference to the issue of 'institutional strain' in the South African schooling system.

> "Many schools suffer from serious institutional strain due to a number of factors. These include:
>
> - large disparities in the allocation of educational resources to the various racially defined education departments during the years of apartheid,
> - rapid expansion of the system during the 1970's and 80's, and

- very high repetition rates in parts of the system and the large number of young adults in schools" (p.8).

Meyer (1998: 7) cites the following figures to give an indication of the magnitude of some dimensions of the problem:

- "In the two decades between 1971 and 1991 school enrolments increased by 245%. Although the national budgetary allocation increased steadily over this period, these incremental increases were not nearly as proportional to the growth of enrolments (Buckland & Fielden, 1994).

- 18,4%of all learners in South African schools were repeating their standards in 1994.

- In 1995 almost 547 000 learners over the age of 19 years were enrolled in public schools nationally (this represented 4,8% of all African enrollments in that year)".

Meyer claims that former so-called "black" (Department of Education and Training – DET) and "coloured" (House of Representatives – HOR) schools are characterised by the inefficient use of time as learning resource. The only difference in the post-apartheid school context is that schools are no longer classified along racial lines, but according to social class – thus, racial discrimination has been replaced by class discrimination. In other words, disparities in resources are now evident between the rich (middle/upper middle class and poor (working class) schools. Hence, high repetition rates and over-aged learners are characteristic of poor schools.

How is the use of time as a learning resource related to learner outcomes? According to Meyer informal observation and research conducted in 1994 showed the large amounts of time wasted due to the

structure and type of curricula activities, lack of punctuality, and absenteeism because of the non-existence of monitoring mechanisms. She calculates that 40-50% of learning time is wasted annually in many schools and that missing more than 60 learning days in a year makes learner failure virtually inevitable (1996:40).

This characterises the situation at Poor Man's Friend Secondary - lack of punctuality and absenteeism among teachers and learners', late coming, long transition times and unscheduled closings are the major areas of time lost.

Another factor that absorbs instructional time is the poor planning and time tabling. As Meyer notes: "In many schools the headmaster took the first six weeks of the year to finalise timetables and teaching schedules. A 1990 DET report also noted that only 15% of DET schools had fully functioning timetables which means that in the majority of schools about 30 days of teaching could be lost before the school year has in effect started " (1996:41).

The timetable problem at Poor Man's Friend Secondary is recurrent due to the continuing redeployment/retrenchment of teachers. For example, in the third term (July 2001) a new timetable had to be drawn up because three teachers were retrenched/redeployed.

Furthermore, the wastage of time at the beginning of the year is inevitable at Poor Man's Friend Secondary because 50% of the school's learners come from the townships. The majority of parents tend to register their children for grade 8 only at the beginning of the school year as opposed to

the previous year. The registration figure for 2002 illustrated this point: only six new learners have registered for grade 8 in 2002 on the prescribed dates - the 3,4 & 5th September 2001.

Therefore, the timetable can only be drawn up in the first two weeks of the new academic year. However, less of the matriculants' time is wasted because the subject and class teachers' move up with their class.

To sum up, the efficient use of time as a learning resource is important because it is contingently related to quality. Hence, optimising the use of school time is the first strategy toward improving learner outcomes.

1.4 Outline

In Chapter 2, the literature on Time and School Learning is reviewed.

The most important study is that of Carroll (1963) because it formed the basis for further developments by Bloom (1968) and by Fisher *et al.* (1980).

In combination the research on Time and School Learning suggests that most learning could be expressed in the form of clearly described learning outcomes/tasks with criteria to judge whether it has been achieved. These models are useful because several elements offer possibilities for improvement of the instructional process and the concepts underpinning the OBE-philosophy.

The next section discusses how instruction can be adapted to increase learners' time-on-task/engaged time - the implications of these findings are summarised at the end of this section.

Thereafter, the classroom testing of time variables by Frederick, Walberg and Rascher (1979:63-5) and Huitt & Caldwell (in Anderson, 1984) is discussed.

Frederick, Walberg and Rascher investigated the quality of classroom time and teacher effectiveness. Their findings endorsed the correlation between better use of time and increase in reading achievement. The two pertinent issues for Poor Man's Friend Secondary was the relationship between efficient use of time and quality of outcomes and their proposal to "establish policies" that will minimise the amount of absentee learners.

Huitt & Caldwell's comprehensive instructional improvement program similarly correlates learner engaged-time to outcomes. Their research instruments provided a systematic way to measure the use of time – which facilitated the data, collection on current classroom conditions and processes at Poor Man's Friend Secondary.

Chapter 3 is about research methods and the fieldwork instruments used.

In Chapter 4 the findings are discussed and areas of improvement identified and selected.

Chapter 5 discusses recommendations to maintain the scheduled time structures. In other words, the amount of instructional time must be increased and learner-engagement optimised.

CHAPTER 2
LITERATURE REVIEW: TIME AND SCHOOL LEARNING

2.1 Introduction

According to Reimers (1993:201) time in the school context is defined as the 'opportunity to learn'. It is determined by the amount of time the teacher makes available to the learner. The assumption is that allocated teaching time defines the opportunity for children to learn.

The World Bank report (1991) refers to the total amount of schooling time (see Diagram 1: Allocation of Time for Learning) when it recommends increasing the official time of the school calendar and utilising this time properly by ensuring:

1. schools remain open during official hours;
2. children and teachers are in attendance;
3. distractions are minimised; and
4. teaching is feasible under inclement weather conditions.

However, variability in the use of allocated time in classrooms and schools implies that studies dealing with the effect of allocated time are of limited value for understanding the likely impact of increasing the school term/day. Allocated time measures are too far removed from the variable of interest-time engaged with instruction – to unambiguously tell us about their impact. As Reimers notes, "a review of the literature on time, prepared for the National Commission on Excellence on Education shows that the relationships between allocated time and time learners are actually engaged in learning is weak" (1993: 201).

This, above mentioned finding, i.e. the reality that not all the allocated time is used for instruction, explains why the increase in the total amount of allocated schooling time did not impact on learner outcomes at Poor Man's Friend Secondary. In fact, so much school time is spent on administrative or classroom management tasks and moving learners from one activity or instructional location to another that little time is left for academic learning.

Reimers (1993:208) pointed out the importance of Academic Learning Time (ALT): "the amount of time available for academic studies is consistently related to how much children learn in school. In general, the more time the teacher spends actually teaching, the more learners learn".

While classroom instruction is valuable for all learners, it is especially important for Poor Man's Friend Secondary's learners, whose out-of-school time and opportunities are limited. Therefore, "policy needs to go beyond setting and maintaining standards for teaching time and focus on the improvement of teacher effectiveness to use time productively rather than the expansion of that time" (p.209).

A major implication of these findings is to remind policy makers of the limits of policy interventions to influence the reality of schools and classrooms. "Education systems are loosely coupled organisations that require focusing as close as possible on action in schools and classrooms (e.g. engaged learning time) and in determinants of those actions (teachers' use of time) - rather than on norms and regulations." The general point Reimers underlines is the need to have policy recommendations that are context-specific (p. 211).

The evidence examined by Reimers' (1993) suggests that teachers can spend long hours with their learners without significant gains in academic achievement, while teachers spending less time with their learners can have higher levels of learning in their classes. This is equivalent to saying that teaching time or time of contact between teachers and learners is not the same as academic engaged time. The relationship between instruction and learner engagement is discussed in section 2.3.

The diagram on page 14, adapted from Husen and Postlethwaite (1985:5266), shows how the total amount of schooling time is absorbed at the various levels.

- The Total Schooling time refers to the number of hours in the school day multiplied by the days in the school year and the number of years of schooling.

- The Total Time tabled Classroom Time refers to the Total Schooling less breaks and time tabled activities such as inter-class movement, registrations, pastoral time and assemblies. This is the time when the learners' individual timetable shows her in a class.

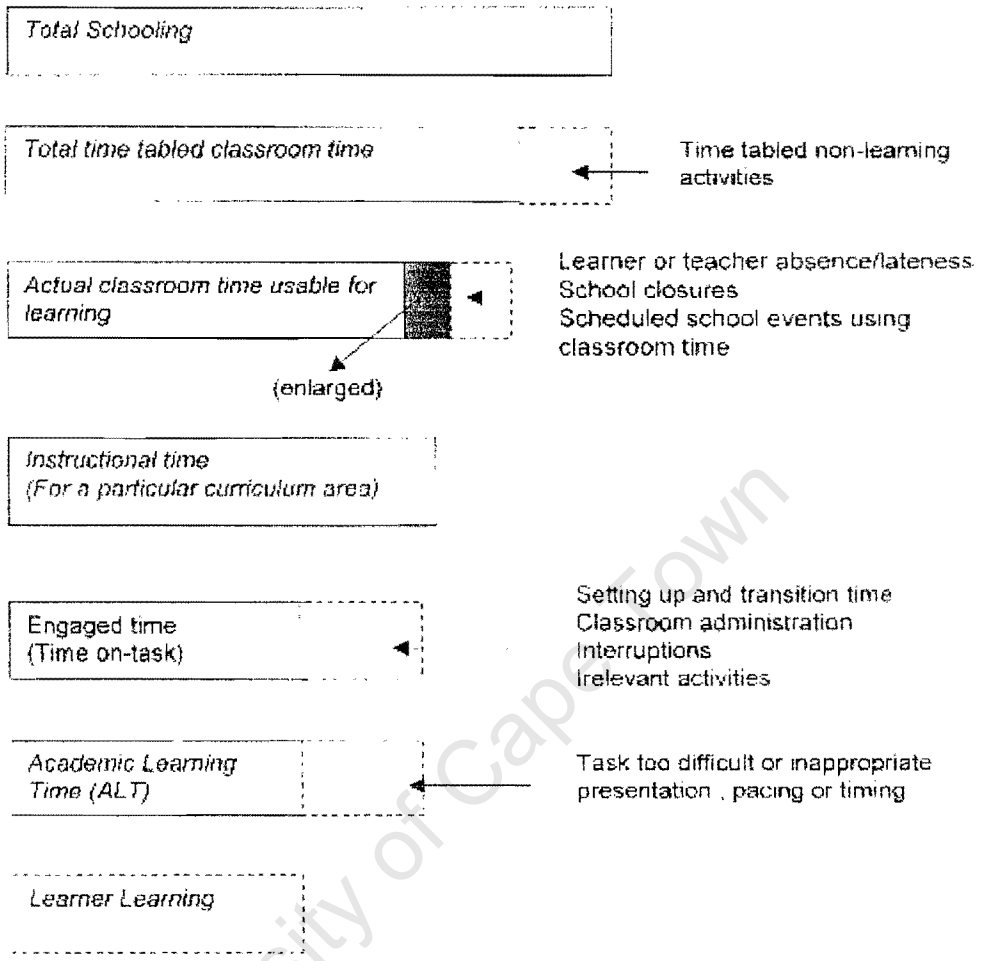
- The Actual Classroom time Usable for Learning refers to the Total Time tabled Time less: learner absences from school, teacher absence, learner/teacher lateness, school closures and scheduled school events, which set aside, class time.

- Instructional Time is the time used for instructional activities in a particular subject/learning area.

- Learner Engaged Time is the proportion of the Instructional Time which the learner actually spends on a learning activity, that is, instructional time less: setting up and winding down time, transition from one activity to another, classroom administration, interruptions, activities not relevant to the allocated curriculum time, e.g. diversion of teacher to another topic, learner inattention or distraction.

- Academic Learning Time (ALT) refers to learning which occurs when the task is sufficiently easy and appropriate for a high rate of success to be attainable. The success rate is the percentages of engaged-time the learner experiences success.

Diagram 1: Allocation of Time for Learning



Source: Adapted from Husen and Postlethwaite (1985:5266)

This model became the frame to aid the research at Poor Man's Friend Secondary School. According to Knight (1989:5) these allocated time structures, i.e. the timetable and the lesson - which are "internal to the school, limit and to some extent determine its curriculum because it affects the content of school activity – therefore also its quality and quantity".

Meyer (1996: 40) expands on the relationship between quantity and quality with reference to the relationship between time and outcomes. She states that that the time learners spent studying is the indicator that correlates most consistently with outcomes. In other words, there is a correlation between efficient time use and learner achievement.

The poor performances in grade 12 at Poor Man's Friend Secondary, i.e. a 58% pass rate in the year 2000 and 59% in 2001, indicated the need for an intervention strategy. The correlation between time and outcomes suggested that the use of time as a learning resource is an appropriate starting point for school-based improvement.

Given the causal relationship between engaged time and academic outcomes, it is clear why there is a need to increase the amount of instructional time and learners' time-on-task. The three models for school learning outlined below explain and clarify the interrelationship between the different time-related variables and how they impact on the teaching-learning process and outcomes.

2.2 Three Models for School Learning

The first model, Carroll's (1963) Model for School Learning (MSL) relates quality of instruction to the amount of time the learner needs to learn. This model measured variables in a common unit, Time, that facilitated comparisons. Furthermore, Carroll produced a formula to explain learning and highlighted the variables that affect learning outcomes and their interaction.

Bloom's (1968) 'Learning for Mastery (LFM) is based on Carroll's definition of aptitude as the amount of time learners' needs to master a learning task. However, Bloom (1968) made his model applicable to a variety of schools settings and focused on individualised learning programs.

The Beginning Teacher Evaluation Study's (BTES)(Fisher *et. al.*, 1980) roots can also be traced back to Carroll's model – two of their time categories are identical, i.e. allocated time (opportunity to learn) and engaged-time/time-on-task (time learner is paying attention, trying to learn/achieve outcome). This model is discussed because they add another time dimension, academic learning time (ALT) – a proxy for learner learning.

2.2.1 Carroll's Model of School Learning (MSL) (1963)

Carroll suggested that most school learning could be expressed in the form of learning tasks, clearly described and with a means for judging whether they have been achieved. He admitted, however, that in practice learning is not necessarily broken into tasks, but conceptually it could be.

The strengths of his Model for School Learning (MSL) are (1) the measurement of variables in a common unit – time; (2) it facilitates comparisons; (3) his formula explained learning; and (4) the MSL highlights the variables that affect learning outcomes and their interaction (Carroll, 1963).

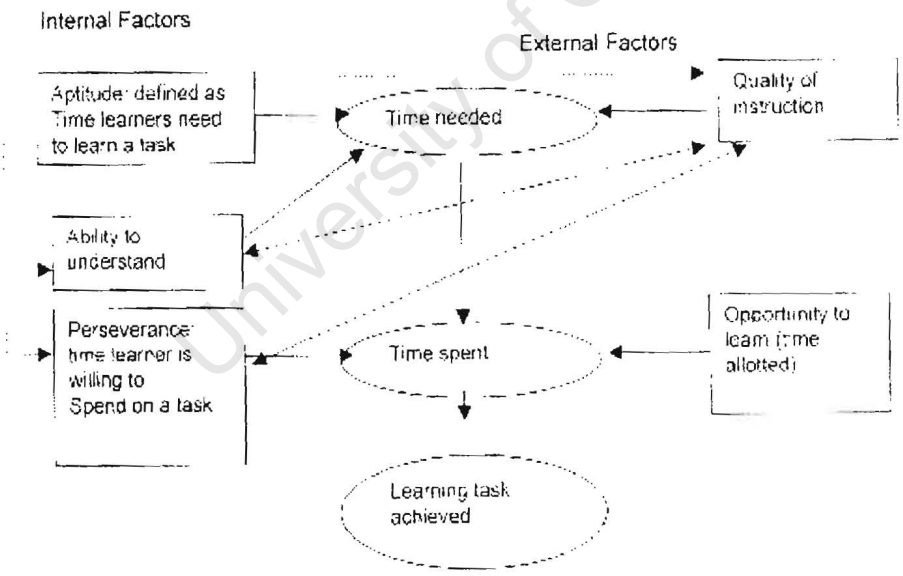
The Carroll model is useful because it takes instruction and teachers into account. Moreover, several elements of the model offer possibilities for

improvement of the learning conditions - or conditions of the instructional process.

The MSL states that the degree of learner mastery is a function of the ratio of the amount of time learners actually spend on learning tasks to the total amount of time they need. Time actually spent on learning is defined as equal to the smallest of three variables:

1.1 Opportunity (*time* allowed for learning)
1.2 Perseverance (*the amount of time* for which learners are willing to engage actively in learning).
1.3 Aptitude (*the amount of time needed to learn,* under optimal instructional conditions).

Diagram 2: Carroll's Model of School Learning (p.131)



Source: Developed from ideas in Carroll (1963)

The amount of time needed to learn is possibly increased because of a poor quality of instruction and a lack of ability to understand less than optimal instruction (Carroll, 1963: in Anderson, 1984: 25). Thus, learning is a function of the extent to which a learner spends the time s/he needs.

So: Degree of learning = [time actually spent] / [Time needed]

The more the learner spends the time she needs, the more is learnt.

In summary, Carroll (1963:131) suggests: "the Model of School Learning does not claim that time is the only variable in learning, or even the most important variable. Although several of the model's variables (e.g. aptitude, perseverance, and opportunity to learn) are expressed in terms of time, what goes on in that time is more important. Critics are confusing necessity with sufficiency: time is undoubtedly necessary, but not sufficient."

The 'Model of School Learning' (Carroll, 1963) thus provided a theoretical and conceptual framework for examining the relationship between time and school learning. The MSL provided the impetus for both Bloom's (1968) Learning for Mastery (LFM) model and the Beginning Teacher Evaluation Study (BTES) (Fisher *et al., 1980).* The LFM-model is discussed in the next section - it is a strategy to improve the quality of instruction for individual learners and to help them make more effective use of learning time.

2.2.2 Bloom's Learning for Mastery Model (LFM) (1968)

Bloom (1968) adopted Carroll's definition of aptitude, as the amount of time a learner requires to master a learning task. He assumed that, given enough time, all learners could master a learning task (p.131). Furthermore, he adapted Carroll's model to make it applicable to a variety of school settings and called it Learning for Mastery (LFM).

The LFM-model relies on the provision of extra time (and appropriate instructional help) for learners to overcome errors and misunderstandings identified by frequent, short, and highly valid measures of learner learning.

Thus, his adaptation supported the possibility to exchange variation in learning, for variation in time needed to learn.

Bloom also suggested a range of approaches to improve the quality of instruction for individual learners', that is, to help them understand instruction better and improve perseverance. He claimed the LFM-model would help individuals make more effective use of their learning time, and so either decreased the time they needed, or increased the time they spent.

These suggestions were developed into a complete strategy, involving:

1) Defining mastery, with identified outcomes and criteria of mastery.
2) Division of material into units, each backed by formative, diagnostic tests.
3) Planning with appropriate activities and materials – particularly support activities and materials for failing learners.

4) Teaching to expectation of success and aiming at criteria for mastery, with appropriate feedback and correction.
5) Grading for competence and not completion.

In other words, teaching causes learning only in so far as it affects learners' behaviour so that learning results. Hence, research concentrated on learner behaviour and the effect of different uses of time upon it.

Burns (1979, in Anderson 1984a: 2-3) sums up Bloom's contribution to the notion of time-on-task/engaged-time succinctly:

> "By defining schooling in terms of what is learned rather than how much time is spent, Mastery Learning programs have been successful in producing higher levels of student learning and a variety of consequences of these higher levels (including positive attitudes, increased task orientation, and decreased variation in student achievement)".

Thus, Bloom's adaptation of the Carroll model focuses on strategies to improve the quality of instruction for individual learners and help them to make more effective use of learning time. His LFM-model underpins the philosophy of the OBE-curriculum introduced into grade 8 in 2001. However, in practice, the big classes and the fact that learners are mixed-ability- and dual-medium grouped, constrain the teacher's ability to address the individual needs of learners.

The third study based on Carroll's (1963) MSL is the Beginning Teacher Evaluation Study (BTES) (Fisher, Filby, Marliave, Cahen, Dishaw, Moore and Berliner, 1978;Denham and Lieberman, 1980) – the most comprehensive study that investigates the time variables that impact on beginner teachers' effectiveness in the classroom.

2.2.3 The Beginning Teacher Evaluation Study (BTES) (1980)

The concept of Academic Learning Time (ALT) evolved out of the Beginning Teacher Evaluation Study (BTES) (Fisher et al., 1980) - the largest and most extensive study of school learning and time-on-task, whose roots can be traced back to the Carroll model (Anderson, 1984: 3). The importance of the BTES research is the group of teacher-alterable variables that emerged from the study and their suggestions for monitoring and altering classroom practice. The relationship of certain areas of classroom practice to academic learning time (ALT) has been empirically validated so those teachers might incorporate it into their teaching methods.

These researchers identified three categories of time: allocated time, engaged time, and academic learning time. Allocated time is identical to Carroll's opportunity to learn – it refers to the amount of time the learner receives instruction to achieve a learning outcome. Engaged time is the same as Carroll's time spent learning – it is the amount of time the learner is paying attention, trying to learn or working to achieve the outcome.

In the next section I discuss the relationship between instruction and learner-engagement.

2.3 Instruction and Learner Engaged-Time

The key issue here is, can instruction be improved to increase Learners' engaged-time?

Instructional activities refer to the teaching strategies employed to reach a particular goal/outcome, whereas engaged-time/time on-task refers to the

extent to which instruction results in successful learning experiences. In other words, the process is complementary because the teaching-learning process is symbiotic.

The literature distinguishes between three aspects of the teaching-learning relationship: firstly, that learner attention is necessarily prior to engagement; secondly, teachers generally approach the classroom as a homogeneous group and thirdly, certain teacher behaviours are associated with increased learner engaged-time. The following sections discuss these.

2.3.1 Learner Attention for Engagement

Anderson (1984b) discusses the internal factors that influence the meaning of time for individual learners. What is learnt in any given amount of time depends primarily on the attention processes of the learner. The concept of attention gives meaning to the term 'engaged'. Attention is a necessary condition for learning and the teacher needs to understand the attention processes to help learners to focus on the learning task. Attention appears to consist of three phases:

> "Selectivity and concentration - are sequential (in nature)
> - Furthermore, selectivity is composed of two sub-phases: filtering and pigeonholing.
> - Finally, while alertness and selectivity are always important phases attention, the importance of concentration depends on
>
> (1) The familiarity of the stimulus or instructional object, and
> (2) The degree to which practice has produced level of automaticity of response (in Anderson, 1984:144b).

Therefore, the teacher's primary task is to direct and sustain this attention process so that the desired learning occurs. However, the reality in the classroom is very different because learners are mixed-ability grouped and the teacher is unable to address individual differences when faced with a class of 40-60 learners. The class is therefore approached as a homogeneous group.

2.3.2 Whole-class Teaching

The limitation of treating the learners' as a homogeneous group or to resort to whole-class teaching, is the 'Matthew effect' of the academically rich getting richer and the academically poor poorer. Ideally teachers have to offset differences in learners' prior knowledge and learning rates to increase 'productive time' for each learner. This is difficult in a class averaging 40-60 learners, unless instruction can be modified to suit individual differences and learning skills.

The second strategy teachers' use for whole-class teaching is called 'maximum utility' (in Knight, 1989:133). Teachers produce maximum overall learning in the allocation of time resources by switching from one activity/learner to another." On the other hand, the 'levelers' spread their time evenly among learners to increase the average gain, and 'elitists' concentrate on the most able learners to increase best performance.

2.3.3 The Relationship between Teaching Methodology and Learner-Engagement

How does instruction impact on learner-engagement? According to Ross (in Anderson, 1984: 5c) the behaviour of both teachers and learners are influenced by the activity patterns of various activity segments.

The structure of the lesson can be defined in terms of activity segments, more specifically, (1) the number and duration of activity segments, (2) the sequence of the activity segments, and (3) the presence or absence of simultaneous activity segments. Each of these features affects the use of instructional time.

As the structure of the lesson increases in complexity, less of the available time is likely to be used productively. Instead, an increased amount of classroom time will likely be spent managing activity segments themselves as well as the transitions between and among segments. She concludes that teacher planning is important in the effective/productive use of instructional time.

The ecological psychological approach of Kounin and Sherman (1979) similarly regards the school "as an environment consisting of various behaviour settings: reading circles, arithmetic lessons gymnasiums. The behaviours of learners and the behaviour setting they occupy influences educators. How a teacher manages a group of learners is dependent upon the behaviour setting (in Anderson, 1984b: 145)."

Paul Gump's (1976) results suggested that learners spent differing amounts of time-on task when they were in different behaviour settings and when

different pacing conditions were introduced in the classroom. Specifically, the results indicated that time-on-task was lower in whole-class recitations than in small, teacher-lead groups.

Furthermore, time-on-task was lower for self-paced activities than for externally paced activities.

Jacob Kounin (1970) began his work on identifying teacher behaviours, which were associated with high levels of time-on-task. Kounin identified several teacher behaviours:

1. *"'With-it-ness'* (i.e. behaviours which communicates that the teacher knows what is going on in the classroom at all times;
2. '*Smoothness*' (i.e. behaviours which maintain the flow of classroom activities, *particularly*, but not exclusively, at points of transition from one activity to another);
3. *Momentum* (i.e. behaviours that maintain the flow of the lessons;
4. *Variety* (i.e. providing different contexts and formats for classroom activities; and
5. '*Group focus'* is comprised of two subcategories:

- Group alerting (i.e. behaviours which alert learners to pay attention even when they are not directly involved in the verbal interchange between teacher and learners; and
- Accountability i.e. behaviours that increase the number of learners who directly participate in the verbal interchange" (In Anderson, 1984b:146).

Taking these findings together, the following classroom settings and accompanying educator behaviours to be related to time-on-task:

1. "Settings in which learners were interacting with a teacher or another adult;

2. Seatwork formats in which the educator circulated, checking work periodically; and
3. Seatwork, which occurred in conjunction with teacher group work (the researcher inferred that the group work was used to prepare for the seatwork through the educators structuring and explaining) (Filby and Cahen, 1977; Fisher, 1978; Fisher, Filby, Marliave, Cahen, Dishaw, Moore & Berliner, 1978" in Anderson, 1984: 154).

Anderson and Scott (1978) investigated the possibility that different teaching methods can be differentially useful (from a time-on-task perspective) for different types of learners. They reached the following conclusions:

- "Teaching methods, which emphasize one-way communication, are associated with higher levels of time-on-task of learners with higher verbal abilities and with lower levels of time-on-task of learners with lower verbal abilities.
- Teaching methods, which provide for 'two-way-communication' are associated with similar, relatively high levels of time-on-task for all types of learners.
- Finally, teaching methods which place the burden of responsibility for managing time directly on the learner is associated with higher levels of time-on-task of learners with more positive academic self-concepts, and with lower levels of time-on-task for learners with less positive academic self-concepts" (p.149).

Arlin (1979) examined the relationship between the teachers' use and monitoring of transitions, and learners' time-on-task. Transition was defined simply as changes from one classroom activity to another. On the basis of the results Arlin concluded that considerably more off-task time occurred during transitions, 'even in schools characterised by "tight discipline" (p.55). Arlin found that transitions could be structured so as to minimize off-task behaviour. This structuring can be accomplished by:

1. Preplanning for transitions rather that allowing them to happen, and
2. Making clear the expectation educators has concerning the way transitions are to occur (p. 149).

2.3.4 Summary

The literature review shows clearly that it is important for teachers to plan instructional activities to maintain learners' attention and to optimise learners' engaged-time.

Therefore, classroom practice should be altered so that instructional activities cater for individual differences to optimise engaged-time for all types of learners.

Anderson (1984b: 154-5) summarizes these key elements of instruction associated with high levels of time on-task in the following way. Teachers need to:

(1) assign tasks of appropriate difficulty,
(2) maintain the flow of activity in the classroom,
(3) communicate learning expectations to the learners,
(4) monitor learner behaviour and learning progress, and
(5) provide knowledge of learning progress to the learners coupled with the provision of additional time and help as needed.

Following Anderson (1984b), the instructional implications of the research can be divided into three sections.

First, instructional planning is imperative because it permits the teacher to direct the learning process and to anticipate problems before they

arise. For example, in the context of Poor Man's Friend Secondary, this entails the teacher having to accommodate the individual differences in the Second Additional Language classroom to obtain and maintain the attention of the Xhosa- and English-speaking learners' simultaneously by grading activities according to the learners' language proficiency.

Second, the need to consider the context of planning and implementing instruction cannot be over-emphasised. For example, at Poor Man's Friend Secondary learners' are part of a counter-school gangster/violence-drug culture.

Consequently, effective management of misbehaviour to neutralise delinquent and abusive learners' is a prerequisite to focus learners' attention on academic work.

Thereafter, planning is importance to minimise disruptions and to accommodate the standard- and higher-grade learners' needs in the same lesson.

Thirdly, the teaching-learning process must be monitored: the form monitoring takes is dependent on the purpose. Learners are monitored for two reasons: (1) to maintain their attention or task-orientation and (2) to check on the effectiveness of their learning in relation to the instructional objectives. This is particularly important to plan an appropriate intervention strategy for Xhosa-speakers who receive instruction in their additional language.

In summary, these three factors, that is, planning instruction, managing misbehaviour to minimise transition time and monitoring learner'

outcomes regularly are imperative to ensure the productive use of instructional time.

Therefore, it is necessary to test to what extent these variables are applied in the classroom and to what extent do the contextual variables impact on the instructional plan? More particularly, how can teachers' effectiveness be improved to optimise instructional time and learner-engagement at Poor Man's Friend Secondary?

In the next section I discuss the relationship between time use and achievement in high and primary schools respectively. Frederick, Walberg & Racher's study was conducted in high schools. Their observations of time usage "showed that schools with higher reading achievement had a lower amount of lost time and better use of time and more use of positive comments were each associated with increases in achievement" (Frederick, Walberg, Racher, 1979:63).

Huitt & Caldwell's Time and Instructional Improvement is based on the research findings that indicate learner-engaged time, or time-on-task, is an important factor influencing academic achievement. Their research provides a means of helping educators translate into practice the important implications of classroom research on effective schools and educational change. Time is one of several factors addressed in their research and development based approach to optimise learners' use of time in school (in Anderson, 1984:206).

2.4 Classroom testing of variables

Two classroom-based tests of time related variables are reported on here. Firstly, Frederick, Walberg & Racher's (1979:63) study *on Time, Teacher Comments and Achievement in Urban High Schools* which focused on the correlation between time use and positive comments to learner achievement. Secondly, Huitt & Caldwell's work (in: Anderson, 1984:204) *Time and Instructional Improvement: a Research and Development based Approach*, which is based on the high correlation between learner-engaged-time and outcomes. Importantly for the purpose of this study, their research instruments were adapted for the collection of data on time use at Poor Man's Friend Secondary School.

Frederick, Walberg & Rascher's work is one of the few studies focusing on time use in the *high school.* Through statistical analyses they reiterate the correspondence between time and achievement, as well as the central role of the teacher in the management of learner behaviour and the instructional process. Having analysed time usage and teachers' statements in 175 classrooms in twenty-six high schools in Chicago, they noted the following:

> "The measures of time were combined into one variable that was then tested for its association to the achievement scores of the eleventh grade class. The correlation showed that schools with higher reading achievement had a lower amount of lost time. Regression models showed that better use of time and more use of positive comments were each associated with increases in achievement. The low use of reinforcing comments by teachers and the high proportion of learner time lost through absences, interruptions, and non-involvement were cited as areas that could be affected by school policies"
> Frederick, Walberg & Rascher (1979: 63).

These researchers coined the concept, **Actual Learner Time**, i.e. the available time in learner minutes minus deductions for absent learner, uninvolved learners, learners who entered late or left early, and for time lost due to interruptions. This concept must be distinguished from the **Academic Learning Time** (BTES - Fisher, *et al* 1980 – see p. 20 above) that helped teachers gain a more accurate picture of their own teaching methods and refers to the amount of engaged-time the learner is experiencing a high degree of success in learning.

The second study, that of Huitt & Caldwell, formed part of the Achievement Directed Leadership (ADL) programme, as a "comprehensive instructional improvement program that included Time as one of its central variables. This research-based program was developed by Research for Better Schools, Inc. (RBS), a Philadelphia-based regional educational laboratory, in cooperation with over fifty teachers and administrators in school in Delaware, New Jersey and Pennsylvania" (Anderson, 1984: 204-5). Their programme provided an overall, district wide approach to instructional leadership that focused on four primary classrooms and teaching variables:

(1) "Prior learning – knowledge students possessed or acquired which helps their learning of a new subject matter;
(2) Learner engaged time – amount of time students actually spent working on and tried to accomplish academic tasks;
(3) Coverage of criterion content – students' opportunities to learn the content on which they were to be tested;
(4) Academic performance – students' success with daily learning tasks, master of content units, and review of recently learned subject matter" (Anderson, 1984:204-5).

They used two types of research: (1) correlation studies relating time and learner achievement and (2) correlation and experimental studies relating teaching behaviours to improve learner engaged-time. A four-phase instructional improvement cycle was the vehicle for promoting instructional improvement. The cycle began with the gathering of information on current classroom conditions and processes. This information was then compared with data obtained from a variety of research studies, and opportunities for instructional improvement identified. Specific changes or modifications in existing classroom conditions and processes were selected and planned. Modifications were implemented in the classroom and monitored to evaluate the effectiveness of these instructional changes.

Huitt & Caldwell's study was useful because it provided the fieldwork instruments to collect data on time use at Poor Man's Friend Secondary. This data formed the basis for recommendations to improve teacher effectiveness to use time productively. The measurement of the variables in a common unit, time, facilitated comparisons between grades and subjects.

2.5 Summary & Conclusion

Given the findings of the two above-mentioned studies, what are the key points that can be drawn from the literature review on Time and School Learning?

First, it is clear that the total allocated school time is not the same as 'opportunity to learn' because in practice only a FRACTION of allocated time is used for instruction. Husen and Postlethwaite (1985) graphically

illustrate the huge chunks of allocated time absorbed at each level. In other words, most of the allocated time is spent on administrative, classroom management and transitional activities that leave only a small portion for instruction.

Second, the amount of time spent on instructional activities is especially important for poor learners because their out-of school time and opportunities are limited (Reimers, 1993). Therefore the need to improve efficiency (quantity of time as a learning resource), is a prerequisite for improving quality (learner outcomes).

Third, the Model for School Learning (MSL) states that the degree of learner mastery is a function of the ratio of the amount of time learners actually spend on learning to the amount they need (Carroll, 1963). His definition of learning allows for comparisons and suggests that any learner can master a particular task if given enough time. He added that time needed to learn could be increased because of poor quality instruction.

Fourth, the Learning for Mastery (LFM) model focused on a range of approaches to improve quality of instruction for individual learners - to help them understand instruction better and improve perseverance (Bloom, 1968). In short, Bloom changed the emphasis from how much time is spent to what is learnt/outcomes. However, although LFM is successful for computerised individual learning systems, it seems to have limited value in under-resourced schools.

Fifth, the Beginning Teacher Evaluation Study (BTES) (Fisher *et al.*, 1980) contributed a third time category, Academic Learning Time (ALT),

i.e. the proportion of engaged-time the learner is experiencing a high degree of success in learning. Their findings endorsed Anderson and Scott's (1978) claim that a variety of teaching practices is associated with higher degrees of engaged and academic learning time (in Anderson, 1984:149). Moreover, both the BTES-study (1980) and Meyer's research (1996 & 1998) suggest that there is a high correlation between ALT and achievement. In fact, Fisher *et al* (1980) concluded that ALT is the crucial residual time element necessary for learning and can be regarded as a proxy for learning.

Sixth, according to Reimers (1993:209) the focus should be on teacher effectiveness to use time productively. In other words, the efficient use of time as a learning resource and instructional behaviours that optimise learners' engaged-time. Therefore it is important for the teacher to plan to minimise transition time.

Seven, Frederick, Walberg and Racher's (1979:63) observation of time usage in urban high schools showed the high correlation between better time usage, and increased use of positive comments by teachers with increases in academic achievement.

Finally, Huitt & Caldwell's Research and Development based approach to Time and Instructional Improvement provided a framework for the research methodology adopted for this study. More particularly, their research instruments were adapted to record and collect data on the current use of time at Poor Man's Friend Secondary.

The next chapter details the research methods that developed from this review.

CHAPTER 3

RESEARCH METHODS: A RESEARCH BASED APPROACH TO EFFICIENT TIME USE

3.1 Introduction

In this section I discuss the research method and fieldwork instruments I used to gather school and classroom data.

Thereafter I discuss the three phases of the fieldwork. During the first phase a pilot was conducted to test the research instruments.

The second phase of the data collection process focused primarily on the grade 12 learners because initially my intention was to explore the reasons for the poor outcomes (58% pass rate) in their final exams (in 2000).

Due to the increased teacher workload, no teachers were available to do daily observation at the time that I teach the grade 12 learners - and the grade12 subject teachers indicated that they were not comfortable with being observed. Thus, only four observations could be done during the second phase of the fieldwork. Hence, the data obtained was very limited in the sense that no trends or patterns could be seen across classes and subject/learning areas.

The third phase addressed these shortcomings and therefore classroom observations included all the subjects/learning areas and grades offered at Poor Man's Friend Secondary. The only exceptions were Woodwork

and Home Economics. The Woodwork teacher clearly stated that he did not want to be observed and the Home Economics teacher was occupied with inspection and 'unavailable' for observation. In total 15 useable observations were obtained.

The next section deals with the instruments used, and describe the fieldwork. In the final section, I explain the limitations of this study.

3.2 The Fieldwork Instruments

Huitt & Caldwell's research and development approach (described in Chapter 2) provided the blueprint for this study. First, the research instruments provided a systematic way to collect data on time use in the classroom. Second, the engagement rate indicated the proportion of learners engaged in the instructional activities. From an analysis of this type of research data, improvement strategies to optimise the use of time can be identified and selected.

Their study provided a systematic four phased cyclical approach to instructional improvement. Due to the limited scope of this project, only the first phase – the collection of classroom data - was applied to this study. A pilot was conducted to ascertain how the research instruments needed to be adapted.

In detail, Huitt & Caldwell's research instruments facilitated the systematic collection of data on time-related variables, namely, (1) the use of Allocated Teaching Time and (2) the Learner Engagement Rate (see Appendix, Figures 1 & 2).

Integrating Huitt & Caldwell's instrument with Husen & Postlethwaite's time categories (see Diagram 1, p. 14), created the Time categories used on Tables 1a &1b. Three different time categories could be distinguished: (1) Total Time Tabled Classroom time, (2) Actual Classroom time and (3) Instructional time. The Total Timetable Classroom time refers to the total schooling less breaks and time tabled activities such as inter-class movement, registrations, pastoral time and assemblies. This is the time when the individual timetable shows the teacher in a class. The Actual Classroom Time usable for learning refers to the total timetabled time less learner absences from school, teacher absence, learner/teacher lateness, school closures and scheduled school events which set aside class time. Instructional time is the time used for instruction in a particular subject/learning area.

The Engagement Rate form, quantifies the number of learners present, absent, out of class, engaged and unengaged – these are major variables that affect learner engagement rate (see Figure 2 in the Appendix). This instrument was modified in the following way: the interval between two scans (of the learners) was increased to two-minute (as opposed to 1 minute) intervals to facilitate observation of a big class.

The unengaged learners were coded over fifteen scans with a two-minute interval in-between. Unengaged learners were those not involved in the assigned academic task and were coded in five *categories* according to their different type of unengaged behaviours:

(1)" *Management/transition* – getting ready for instruction, waiting or listening to non-academic directions, or changing activities;
(2) *Socializing* – interacting with other learners, or watching another learner being punished;

(3) *Discipline* – being reprimanded or punished by an adult, or watching another learner being punished;
(4) *Unoccupied/observing* – wandering about with no apparent purpose or goal, watching other people, or playing with materials; and
(5) *Out of room* – being temporarily out of the classroom" (in Anderson, 1984:209).

The observer recorded the time and the number of learners assigned to subject/learning area at the beginning of each scan. Learners were coded engaged, i.e. involved or attending to instruction: reading, writing, answering a teachers' question, watching a learner answering a problem on the board, listening to a teachers' academic presentation, or doing anything else to indicate involvement in academic tasks.

A tally mark was made in one of the five unengaged categories each time an unengaged learner was observed. At the end of each scan the number of unengaged learners was computed by subtracting the number of 'assigned' from the 'unengaged' equal the 'engaged'. If, for example, there were 35 learners in a class during 15 scans of the classroom, the total number of assigned learners would be 525 (i.e. 35x15). If the total number of engaged learners over all these observations were 449 learners, the engagement rate would be computed by dividing 449 by 525, a rate of 85,5 per cent.

The data, from the two instruments, collected in a common unit, time, facilitated comparisons between learning areas/subjects, teaching style and grades and can indicate the effectiveness of teaching strategies. In addition, the observation method facilitated teachers working closely in each other's classrooms and shifted the focus from the teacher to the learners.

3.2.1 Fieldwork

The pilot testing of the Allocated Time log and Engagement Rate form was done on the grade 8 class to monitor the effects of the Outcomes Based Education Curriculum and the difficulties the management of large classes presented.

Initially, for reasons elaborated in the limitations of the study, the fieldwork proper was done in the researcher grade 12 Language class. These four sessions were observed by other teachers. Before they began the observations they were inducted into the use of the instruments. On two occasions I was able to have two observers in the classroom to increase reliability. After each session the researcher and the observers discussed the completion of the schedules to try and obtain uniformity of understanding and completion. Even though it was not possible on all occasions to have two observers, attempts at reliability were made through the de-briefing the observer after the lesson to ensure common understandings and interpretations. It should be noted too that the instruments were designed to reduce variation in interpretation.

However, the data obtained was inadequate because I was unable to verify if there was a difference in the use of time in the junior versus senior grades and in the language versus science classrooms. The assumption here was that there would be more productive use of time in the senior grades and in the sciences in contrast to the lower grades and languages.

Therefore, the third and final phase included all the grades, subject and/ learning areas and teachers – there were only two exceptions because

these teachers refused to participate in the study. In total, twenty observations were made of which fifteen were full observations. Five observations were incomplete because some teachers were not very forthcoming and therefore I approached them when the lesson was in progress - this data was not included.

3.2.1.1 Pilot – First phase

The pilot conducted in the second term - the 10-14 April 2000 - indicated the need to adapt the Engagement Rate form (see Appendix 1, Figure 2). At this stage, two teachers observed the grade 8 classes to enable them to record the data accurately. The pilot showed the need to adapt the procedure for recording the teacher's use of allocated time.

The first instrument, the Allocated Time Log was extremely difficult for the teacher-researcher to complete because it was impossible for her to observe and record the time she spent on different teaching activities – therefore a second observer was necessary.

The observer filling in the second instrument, the Engagement Rate Form, indicated that it was difficult to keep track and categorise the unengaged learners in a big class (sixty learners). He suggested lengthening the time intervals between scans to two minutes (instead of one minute) to enable the observer to code the unengaged learners accurately.

Thus, the pilot was advantageous because it indicated the need for two observers – one to code the Engagement Rate of learners and the other to record the Teacher's use of Allocated Time. Second, it showed that

the time intervals between should be increased to two minutes in a big class.

In summary, the pilot highlighted the interdependence of the time tabled and classroom time structures: a large amount of time was wasted due to not adhering to the scheduled time frames and lengthened transitions.

These factors shrunk the available classroom time, which in turn impacted on learner learning. For example, during the pilot run of the research instrument, two school days were shortened by half an hour to have unscheduled/emergency staff meetings. On Friday, four teachers were out of class the entire school day due to consultation with their subject advisors'. Therefore, learners had to go to their guardian teachers and this resulted in frequent interruptions during instruction, extended transition time between periods, and aggravated behavioural and discipline problems. Consequently, an enormous amount of instructional time was wasted and very little learner learning occurred.

3.2.1.2 Selection & Rationale: Second & Third Phase

The fieldwork for the second stage of the research was done from the 13th –17th August 2001. At this stage of the project, I was the subject of the study in the context of my grade 12 Additional Language class. The grade 12 group was selected because (1) their poor results in 2000 and 2001 are in the public domain and (2) these results are used as an indicator of education quality.

However, the adjustment to the new timetable (in the third term) due to the redeployment of three teachers (at the end of the second term) and the increased teacher workload, meant only four observations were

possible. Thus the data collected was insufficient. Therefore, follow up observations were started in the fourth term on the 15 October 2001. The third phase extended the fieldwork to include observations of grades 8, 9, 10 and 11 in Mathematics, Accounting, English, Afrikaans, Physics, Biology and Typing. In total 20 observations were done over a three week period. Only 15 were useable. It was also important to observe the grade 8's and 9's to see how the implementation of the new Outcomes Based Curriculum and big class size impacted on instructional time and learner-engagement.

These classroom observations – across grade levels and subject/learning areas - provided the necessary data to facilitate comparisons. Three time variables were distinguished – Total Time Tabled time, Classroom time and Instructional time (refer to table 1a & 1b). Certain trends emerged from the statistics, which are discussed in chapter 4.

The second form, the Engagement Rate form (see Appendix) included valuable data that influenced the engaged-time of learners, for example, the number of learners absent, present, out of class, engaged and unengaged. This information indicated which instructional activity optimise learner-engagement.

3.2.1.3 Limitations

The major contextual constraint was to get the permission of staff members to observe their class and to find colleagues willing to observe my classes. This could be attributed to the fact that teachers had limited non-teaching "free" time. Only four out of thirty-nine teaching periods are allocated for administrative and other activities. Hence, teachers use

their administration periods to prepare for their class or to recover from their stressful teaching experiences.

The second major potential constraint was the spread of the data collection process (13 – 17th August; 15 – 19th October; 22nd October 2001). Each term had its idiosyncratic time constraints. For example, the fourth term is a short term and the loss of time hampered the fieldwork. Although observations started in the second week of the final term the twenty observations could not be completed - about a half of the total time tabled school time was lost due to the structure and duration of the final exam timetable. However, the advantage of the time spread was that the observations provided a snapshot over the year cycle and added a measure of reliability.

The third constraint was the unfamiliarity of colleagues with research and their consequent lack of willingness to take part in the project and be observed. Because of this, seven out of the twenty observations were done in my own Afrikaans Language classes:

(1) In grade 12 Afrikaans Additional Language – four observations;
(2) In grade 11 Afrikaans Mother Tongue –one observation;
(3) In grade 9 Afrikaans Mother Tongue – one observation and
(4) In grade 8 Afrikaans Additional Language/Language, Literature and Communication (LLC) – one observation.

Initially, this over-representation of the researcher's classes was seen as a limitation. However, the strength of the data collected across the different grades and language groups in the same teacher's class was that it enabled me to identify areas of instructional improvement in terms

of my own use of classroom time. The weakness is that it creates difficulties of interpretation and generalisation.

Overall, while it would have been desirable to have done more observations, the completed work across the grades provided a very illuminating set of data from which to guide further research.

3.3 Conclusion

The instruments used illustrated the interdependence of the time tabled and classroom time structures in schools, and enabled one to identify the major areas of time loss that impact on the time tabled structures.

Furthermore, the record of how the available classroom time is used indicated the amount of time absorbed by inter-class movements and transitional activities and this information provided pointers to clearer remedial action.

Therefore the research data enabled the teacher-researcher to identify how time is lost and the amount of time lost. This enabled her to recommend improvement strategies to promote the efficient use of time as a learning resource.

CHAPTER 4
DISCUSSION OF THE DATA & IMPLICATIONS

4.1 Introduction

At Poor Man's Friend Secondary classroom instruction is especially important because these learners come from an impoverished background and therefore their out-of-school time and opportunities are limited. Consequently, it is imperative to increase their academic engaged-time and by implication teachers' productive use of classroom time.

However, prior to this step, it is necessary to take stock of the current time use as illustrated in Tables 1a, 1b, 2a and 2b. The data listed in the tables was contextualised by recording the actual school starting and ending times. This information was integrated with the diagram adapted from Husen & Postlethwaithe (1985) (Diagram 1 on page 14) and their concepts were adapted to interpret the classroom data. For example, the Teacher Allocated Time Log recorded the amount of classroom time used for instruction and the kind of instructional activity learners engaged in. The time lost was calculated by deducting the amount of time spent on instruction from the time tabled time.

The data was then compared by grade because the researcher's premise was that the senior grades would use time more efficiently than the lower grades (refer to Table 1a).

Table 1b charts the data by subject because it was expected that there would be more productive use of time in the sciences because of the

nature of the curriculum - a clearer task focus and limited scope for discussion and smaller classes (see Table 3, especially grade 11).

The Learner Engagement Rate is charted in Table 2a by grade and in Table 2b by subject to verify the above mentioned assumptions. A comparison of the instructional activities with engagement rate enabled the researcher to assess which instructional activities are more effective with regard to optimising learners time-on-task or engaged-time.

Table 3 charts the number of learners present, absent and out of class – this data enabled me to quantify the number of learners not receiving instruction. By implication, these learners are the most likely to fail and contribute to the high failure rate at Poor Man's Friend Secondary.

4.2 Allocation of time for learning

Husen and Postlethwaithe's (1985:5266) diagram 1 (on page 14) graphically illustrated that Learner Engaged Time is the proportion of instructional time the learner spends on an activity. Also, it shows that the total time tabled classroom time is the time the individual learner's timetable shows her in a class. These definitions were used to interpret the data below, which were derived from Figure 1 (see Appendix).

4.2.1 Grade-level

Table 1a charts the Total Time Tabled-, Actual Classroom- and Instructional time by grade over 15 observations. The first column lists the Time tabled schooling time. The Total time tabled time equals 650 minutes. The second column lists the Actual Classroom time, which totals 483 minutes. This indicates that 74,3% of the Total time tabled time

is spent in the classroom. The third column shows the total Instructional time is 387 minutes or ONLY 58,9% of the total time tabled time in a particular subject/ learning area. In other words, 263 minutes of time tabled time was lost, which translates into 40,5% of the total time

Table 1a: Table of Time Tabled, Classroom and Instructional Time use by Grade (15 observations)

* The following table illustrates time use in different grades in minutes.

Grade	Time Tabled Time	Classroom time	Instructional time	Total time lost
12	45 min	40 min	36 min	9 min
12	45 min	40 min	35 min	10 min
12	35 min	30 min	29 min	6 min
12	45 min	30 min	22 min	23 min
Sub Total	170 min	140 min	122 min	48 min
	100%	82,2%	71,8%	28,2%
11	45 min	35 min	29 min	16 min
11	45 min	35 min	28 min	17 min
11	45 min	30 min	24 min	21 min
11	40 min	28 min	17 min	23 min
11	40 min	28 min	16 min	24 min
Sub Total	215 min	156 min	114 min	101 min
	100%	72,6%	53%	46,9%
10	45min	35min	28min	17min
	100%	77,7%	62,2%	37,7%
9	45 min	35 min	30 min	15 min
9	45 min	30 min	28 min	17 min
9	45 min	30 min	23 min	22 min
Sub Total	135 min	95 min	81 min	54 min
	100%	70,4%	60%	40%
8	45min	27min	22min	23min
8	40 min	30 min	20 min	20 min
Sub Total	85min	57 min	42 min	43 min
	100%	67,1%	49,4%	50,6%
Total	650 min	483 min	387 min	263 min
	100%	74,3%	59,5%	40,5%

A detailed analysis of the data by grade-level confirmed the researcher's prior assumption that current use of time was the most efficient in grade 12, that is, 71,8%. This can be explained by the smaller class sizes (an average of 20 for Afrikaans-medium learners and 40 for English-medium learners). Another factor that contributed to the productive time use is the increased task-focus of teachers due to the external exams that reinforces their accountability for the grade 12 results.

The grade 11 data was interesting because it contradicted the expectation that time use would be as efficient as with the grade 12's because the Grade 11 curriculum lays the foundation for grade 12. However, the greatest amount of time was lost - 46,9% or 101 minutes out of a total of 215 minutes Instructional time. This could possibly be accounted for by the bigger class sizes (40 to 60 learners) and the fact that teachers can determine the work to be examined and have more control over learners' results. Learners are promoted on compassionate grounds or because they are over-aged/failed twice in the cycle so that there is less incentive for learners to pass or teachers to teach.

The power teachers have to 'manipulate' the internal exam results or promote learners, in turn affects the potential of learners to succeed. Moreover, the amount of work learners have to cover are increased if the teacher was unable to complete the curriculum or the learner did not master the work covered in grade 11. Also, the culture of promotion breeds laziness in learners and an attitude of dependency on unearned marks to proceed to the next grade.

Only one valid observation was done in grade 10 and the results indicate that 62,2% of the total time tabled time was used for instruction. Thus, 37,7% of the time tabled time is lost and this indicates the need

for more effective use of classroom time. This is a challenge because the maximum class size is currently 60 learners whilst the school's resources only cater for an average class size of 30 (e.g. each class is able to purchase only 30 texts per subject per grade). Hence, more time is needed to control learner misbehaviour and less time is available for instruction.

The implementation of the Outcomes Based Curriculum into grade 8 for the first time in January 2001 played a major role in the amount of instructional time lost. This can be explained by the fact that teachers were not adequately prepared for the application of the outcomes based curriculum; also the overcrowded classrooms and problems with Xhosa-speaking learners receiving instruction in their additional language, plus the limited resources resulted in huge amounts of time absorbed by administrative tasks. Consequently, only 49,4% of the grade 8 time tabled school time were spent on instruction, which means that 50,6% was wasted.

In grade 9, 60% of the total time tabled time were spent on instruction. However, the combined impact of the implementation of the Outcomes Based Curriculum (for the first time in 2002) and the effects of rationalisation - in the context of limited resources, bigger classes (40-60 learners) and Xhosa-speaking learners – will probably increase the current calculations of a 40% of time tabled time lost.

In all grades the management of misbehavior and limited resources in bigger classes constricts the instructional time.

4.2.2 Subject/Learning Area

In comparing the Language Learning Areas with the Sciences, it was expected there would be more efficient use of time as a learning resource because of the nature of the curriculum (more task-orientation and limited scope for discussion) and because there are smaller classes in the senior grades (grades 10 to 12). However, as the table indicates, the results show the reverse.

Table 1b: The Time Tabled, Classroom and Instructional Time use by Subject (15 observations)

Languages	Time Tabled Time	Classroom time	Instructional time	Total time lost
Afrikaans	45 min	40 min	36 min	9 min
Afrikaans	45 min	40 min	35 min	10 min
Afrikaans	45 min	35 min	29 min	16 min
Afrikaans	45 min	30 min	22 min	23 min
Afrikaans	40 min	28 min	23 min	17 min
Afrikaans	35 min	30 min	29 min	6 min
Afrikaans	45 min	35 min	28 min	17 min
Afrikaans	45 min	30 min	20 min	25 min
English	45min	35min	28min	17min
Sub Total	390 min	303 min	250 min	140 min
	100%	77,6%	64,1%	35,8%

Sciences	Time Table Time	Classroom time	Instructional time	Total time lost
Biology	45 min	35 min	28 min	17 min
Biology	45 min	35 min	30 min	15 min
Physics	45 min	30 min	24 min	21 min
Mathematics	40 min	21 min	16 min	24 min
Mathematics	45min	27min	22min	23min
Accounts	40 min	27 min	17 min	23 min
Sub Total	260 min	175 min	137 min	123 min
	100%	67,3%	52,6%	47,3%

Total	650 min	483 min	387 min	263 min
	100%	74,3%	59,5%	40,5%

Contrary to my expectations, the use of time in the Languages was more efficient. The calculations for the nine observations in the Languages indicate that out of 390 minutes (100%) of time tabled time, 303 minutes (77,6%) were spent in the classroom and 250 minutes (64,1%) of the time tabled time were spent on instruction. Thus the total time lost amounted to 140 minutes or 35,8% of the time tabled time, that is, more than a third of the allocated school time - an expensive learning resource - was wasted during the observation period.

By comparison, the calculation for six observations in the Sciences, a national priority, indicate that out of 650 minutes (100%) of time tabled time, 483 minutes (74,3%) were spent in the classroom whilst only 387 minutes (59,9%) were spent on instruction. That means that 263 minutes (40,5%) of the time tabled time was wasted. It is commonsense understanding that the amount of time spent on instruction impact on learner outcomes.

Given the fact that teachers need to use instructional time effectively, what can be done to measure the effectiveness of the instructional activities? In the next section I focus on the learners engagement rate, that is, the percentage of learners engaged/on-task during instruction.

4.3 Learner Engagement Rate

In this study the learner engagement rate is used to indicate the extent to which learners were engaged in the instructional activities. These engagement rates were calculated by dividing the number of engaged-learners by those assigned and translating it to a percentage. The Learner Engagement rates listed below were derived from the Learner Engagement Rate form (see Appendix).

The Engagement rate was then listed in Table 2a by Grade and Table 2b by Subject to facilitates comparisons.

4.3.1 Learner Engagement Rate: by Grade

These engagement rates were recorded for the instructional times as listed in Table 1a. The average engagement rate was 91% with the lowest rate being observed with the grade 12's.

Table 2a: Learner Engagement Rates by Grade

Grades	Recorded Learner Engagement Rate %
Grade 12	
Afrikaans L2	85,5
Afrikaans L2	77,9
Afrikaans L2	73,7
Afrikaans L2	76,1
Average Engagement Rate	**78,3**
Grade 11	
Afrikaans L1	92,3
English L2	91,1
Accounts	96,0
Mathematics	99,3
Physical Science	97,6
Average Engagement Rate	**95,6**
Grade 10	
Biology	**90,0**
Grade 9	
Afrikaans L1	69,4
Afrikaans L2	84,2
Biology	91,8
Average Engagement Rate	**81,8**
Grade 8	
Afrikaans L2	86,6
Mathematics	95,1
Average Engagement Rate	**90,9**

It is cause for concern that the *lowest engagement rate* was recorded in the grade 12 class because it could indicate learners' disinterestedness in the task at hand, a lack of motivation or worst of all, poor quality instruction. From my own experience with the particular class and the input from observers, it was ascertained that a large number of 2001's matriculants were disadvantaged by the impact of the continuing rationalisation process at our school since grade 8.

Their final Afrikaans L2 results in 2001 was exceptional - their average pass rate was 100%. This incongruity can be explained by the fact the teacher completed a section of the curriculum content in grade 11 and hence more time was available for revision and honing exam technique.

4.3.2 Learner Engagement rate: by Subject

The table below indicates that the average engagement rate for the Languages (82%) were lower than for the Sciences (94,9%).

This finding can be explained in three ways. First, in the sciences, there is a clearer task focus and limited scope for discussion. Therefore there are less opportunity to become unengaged. Second, smaller classes in the science classes (20-30 learners) versus the Language classes (40-60 learners') results in less time being used for management activities and more time spent on-task. In other words, it is easier for the science teacher to maintain and monitor learners' behaviour and to elicit feedback than for the language teacher. Third, in the sciences each learner has her own text and less time is spent on management activities to hand out texts at the beginning of the period. Thus, more time is available for instruction and learner engagement are optimised.

Table 2b: Learner Engagement Rate by Subject

Subject	Recorded Learner engaged rate (see Fig.2) %
Languages	
Afrikaans L2	85,5
Afrikaans L2	77,9
Afrikaans L2	73,7
Afrikaans L2	76,1
Afrikaans L2	84,2
Afrikaans L2	86,6
Afrikaans L1	93,9
Afrikaans L1	69,4
English L2	91,1
Average engagement rate	**82,0**
Sciences	
Accounts	96,0
Mathematics	99,3
Physics	97,6
Biology	90,0
Biology	91,8
Mathematics	95,1
Average engagement rate	**94,9**

At the same time there were high engagement rates in two Language classes in which engagement rates of 93,9% and 91,9% were recorded. There could be a number of factors that contribute to the high learner engagement as elaborated on by Anderson and Scott (1978). During data collection process it was noted that learner engagement was higher in classes where teaching methods emphasized one-way communication. However, learners with better linguistic skills spent more time on-task that learners with lower verbal abilities.

4.4 Learner Attendance: by Grade and Subject

Given the fact that the poor learners' out-of-school opportunities are limited, it is important to monitor learners' school attendance. Over the period, 9,5% of learners were absent and about 3,5% were out of the class.

Table 3: Learner Attendance

Grades & Subject	Total Learners	Learners present	Learners absent	Learners out of class	% Learners not receiving instruction
Gr. 12: Languages					
Afrikaans L2	41	35	6	0	17,1
Afrikaans L2	41	35	4	2	17,1
Afrikaans L2	41	35	6	0	17,1
Afrikaans L2	41	35	5	0	13,9
Gr. 11: Languages					
Afrikaans L1	37	35	2	0	5,7
English L2	37	33	4	0	12,1
Gr. 11: Sciences					
Accountancy	50	41	9	0	21,9
Mathematics	24	24	0	0	0
Physical Science	14	6	8	0	57,1
Gr. 10: Sciences					
Biology	36	36	0	0	0
Gr. 9: Languages					
Afrikaans L1	34	22	4	8	54,5
Afrikaans L2	38	38	0	0	0
Gr. 9: Sciences					
Biology	37	37	0	0	0
Gr. 8: Languages					
Afrikaans L2	47	41	0	6	14,6
Gr. 8: Sciences					
Mathematics	47	37	6	4	27,0
Total Learners	564	491	54	20	13,1
Percentage	100	88,1	9,5	3,5	13,0

There are three main points to note about these findings:

Firstly, the highest absentee rates were recorded in the grades where the Xhosa-speakers are in the majority. This finding might be explained by the fact that these learners (50% of the school) are commuters and dependent on public transport. Thus, there are a large number of learners that are absent are from this group (due to poverty there is limited money available for weekly transport tickets) or who come late (due to delays with scheduled trains, accidents, union strikes).

Secondly, with reference to learner attendance by subject it may be that attendance is much better in the senior science classes because these classes are smaller and easier to manage and monitor.

Two of the findings on Table 3 are exceptional cases. The one exception was Physical Science that indicated 57,1% of the learners were absent. It can be explained by the desperate measure of the teacher who sent learners home to force parents to pay school fees. The grade 9, Afrikaans L2 data shows that 54,5% of the learners were not receiving instruction. These learners were attending to a security emergency at the time.

Thirdly, the learners out of class is a contentious issue because it is contingency disciplinary strategy – disapproved of by the management structure - that certain teachers use when learners are disruptive, rude or did not do homework.

4.5 Summary & Conclusion

It is evident that the inefficient use of time at Poor Man's Friend Secondary does **limit** and to a large extent determine its curriculum because it affects the content of school activity, and especially its **quantity** and **quality**. The extent of the time loss over one school week is illustrated in Table 4 below.

Table 4: Weekly Time Tabled Time Lost

Total periods	Time Tabled time (minutes)	Classroom time	Instructional time	**Total Time Lost**
39	1545	1147	919	**625**
% time	100%	74,3%	59,5%	**40,5%**

As indicated in Table 1a, on average only 59,5% of Time Tabled schooling time is used for instruction. In other words, 40,5% of time tabled school time lost over one school week translates into 625 minutes out of 1545 minutes. That is, 10,4 hours are lost weekly. Over one year's schooling (40 school weeks) it means that (40 weeks x 10,4 hours) 416 hours of time tabled time are wasted annually. In other words, 16,1 school weeks are wasted annually – that is, about 40% of the total time tabled school time. These findings confirm Meyer's earlier results (1996:40).

Moreover, the impact of the quantity of time use on the quality (of instruction) is indicated by the Actual Learner engagement rates for the different grades calculated below.

Table 5: Actual Learner Engagement Rate

Grades	Instructional Time %	Engagement Rate %	**Actual Engagement Rate %**
12	71,8	78,3	**56,1**
11	53,0	95,6	**50,7**
10	62,0	90,0	**55,8**
9	60,0	81,8	**49,1**
8	49,4	90,9	**45,4**
	AVERAGE ENGAGEMENT RATE		**51,4**

The table above indicates that the average Learner engagement rate is 51,4%. This means that learners are engaged in schoolwork for only half of the 24 weeks actually used for schooling, that is, about 12 weeks. There is very little time on-task throughout the grades.

In conclusion, it is evident that the 16 weeks of time tabled school time lost annually plus the actual learner engagement-rate of 51,4% and the average of 74 learners not receiving instruction translates into an inevitable high failure rate.

Clearly, the poor learner outcomes indicate that a school-based intervention strategy is necessary. In this regard, the final chapter makes a few recommendations.

CHAPTER 5
RECOMMENDATIONS

The recommendations discussed below were derived from the findings on the use of time tabled time at Poor Man's Friend Secondary School. As was indicated in the previous chapter, a projected average of 16 out of 40 school weeks would've been wasted annually. In other words, 40% of the total allocated time – by far the most costly resource seen in terms of expenditure on education budgets – would've been lost. Therefore, in terms Meyer's (1996:2) claim, the inefficient use of time as a learning resource would've restricted the scope for quality education at Poor Man's Friend Secondary. It follows that a key issue would be to ensure the efficient use of time tabled time - this could be done by reducing time used for non-academic activities and by maintaining the school's official time schedules.

The calculation of the actual learner engagement rate of 51,4% (in chapter 4), when viewed against actual time used for instruction, that is 24 weeks, means that learners' academic learning time would've been almost be halved. Add to this, is the finding that during the 12 weeks of actual instructional time, approximately 13% of the learners would've been either absent, or out of class - this scenario makes learner failure virtually inevitable.

The large percentage of unengaged learners (48,6%) indicated the need to optimise learner engagement. This could be done through minimising the amount of time spent on classroom management activities – so that more time could be spent on instruction.

This relationship between learning an instruction was pointed out by Carroll (1963) who stated that learning is a function of the extent to which a learner spends the time she needs. In other words, the amount of time needed to learn could be increased by poor quality instruction. Hence, optimal instruction can reduce the time learners need to learn.

In the following section I focus on the promotion of the productive use of instructional time, and optimisation of learner-engagement.

5.1 Efficient Use of Time

At Poor Man's Friend Secondary a prerequisite for the efficient use of time would be to adhere to the official scheduled time structures. Moreover, the amount of time tabled classroom time lost through inter-class movements, registrations, pastoral time and assemblies should be reduced. Furthermore, other areas of wastage of instructional time, such as teacher/learner late coming and absenteeism, unscheduled school closures and scheduled school events that set aside class time must be minimised. In other words, instructional time would be optimised by minimising the setting up and winding down time, transition from one activity to another, classroom administration, interruptions and activities not relevant to the allocated curriculum time, e.g. diversion of the teacher to another topic, learner inattention or distraction.

These measures would maximise the time spent on instruction. The instructional process is characterised by two specific teacher behaviours, that is, management behaviours, which deal mainly with skills and techniques designed to control learners' behaviour; and instructional behaviours, which deal with improving the quality of learners' learning.

Huitt & Caldwell (in Anderson, 1984:220) delineate three themes from management behaviours, that is, selecting and arranging activities, monitoring learner behaviour, and dealing with misbehaviour. In general, the following management strategies associated with high engagement-rates (see Caldwell, Huitt and French, 1981):

> STOPPING MISBEHAVIOUR
> Anticipate consequences; head off misbehaviour before it occurs.
> State expectations for behaviour clearly.
> Hold students accountable for behaviour.
> Give feedback on behaviour, perhaps privately
>
> SELECTING AND ARRANGING ACTIVITIES
> Use routines to reduce confusion.
> Establish clear and consistent rules.
> Plan for transitions between activities; have materials ready.
> Foster good student work habits.
> Structure the physical environment to facilitate learning.
>
> MONITORING
> Move around the room to monitor behaviour.
> Pace activities appropriately" (in Anderson, 1984: 218).

However, in the case Poor Man's Friend Secondary there is a prior need for the uniform implementation of the school's disciplinary code in order to set the parameters for classroom interaction. Effective management of learners' misbehaviour is predicated on a functional code of conduct that forms a dynamic part of the culture and ethos of school learning.

5.2 Optimise Learner Engaged-Time

Reducing the number of ungengaged learners is a prerequisite for the optimisation of learner engagement. In other words, effective misbehaviour strategies must be in place to reduce the number of learners absent and/or out of class, to enhance the impact of instructional activities.

The research evidence on specific instructional behaviours reveals numerous and complex relationships with learner engaged time (as well as with learner achievement). However, there are a number of teacher behaviours that seem to be consistently mentioned as facilitating learner engagement (Anderson, 1981; Medley, 1977; Rosenshine and Furst, 1973).

A synthesis of relevant research and theory (e.g. Bloom, 1976; Good and Grouws, 1979; Hunter and Russell, 1977; Medley, 1977; Rosenshine, 1976) has led to the development of a sequence of important instructional events. These events can be grouped into four major categories: presentation, practice, feedback and monitoring.

INSTRUCTIONAL EVENTS

PRESENTATION - Introduce, develops, or reviews concepts and skills.
- Review
- Overview - what, why
- Explanation
- Student demonstration of understanding

PRACTICE - Strengthen, apply, or give additional experience with concepts and skills.
- Guided or controlled practice
- Independent practice

FEEDBACK - Let students know whether their answers were right or wrong and why.

MONITORING - Assess and maintain student's knowledge and application of concepts and skills.
- Daily work (including new and review content)
- Unit or topic tests" (in Anderson, 1984:219).

These instructional generalisations must be applied to specific subject content to be meaningful. Teachers must identify the specific behaviours useful to them, and organise them into a cohesive strategy. This strategy would be effective to achieve the specified goal of optimising the amount of instructional time, engagement rate or both.

After designing such a strategy for reaching these goals, teachers must plan the implementation of the strategy, how to monitor the use of the strategy to ascertain whether the planned change had taken place. This can be done as part of a staff development program, or by the individual teacher.

5.3 CONCLUSION

The increase in the total allocated school time has not improved Poor Man's Friend Secondary school's learners' opportunity to learn/outcomes as is evidenced by the poor matriculation results in 2000/1 and ad hoc 'application' of OBE in grade 8.

The efficient use of allocated time was hampered, especially in the case of the grade 8's (OBE) because of insufficient planning – teachers were unable to generate learning programmes and were unprepared for their changed role as facilitators. Further research needs to be done to assess the implementation of OBE into grade 9 this year (2002).

The poor matriculation results could also be explained by the projected 40-50% of learning time that would be wasted annually and the corresponding low learner engagement rate plus the 13% of learners out of class/absent. Thus one intervention strategy could be to focus on the

efficient use of the official scheduled time and optimisation of learner engagement.

[WORD COUNT: 15010]

APPENDIX

APPENDIX I

FIGURE 1: ALLOCATED TIME LOG
From: Huitt & Caldwell (1984) Time & Instructional Improvement: a Research & Development based approach.

	School: Teacher:	Subject: Grade:	Date:	No. of learners present:
	ACTIVITY	BEGINNING TIME	ENDING TIME	TIME IN MINUTES
1				
2				
3				
4				
5				
6				
7				
8				
9				
	TOTAL			

FIGURE 2: ENGAGEMENT RATE FORM

Adapted from: Huitt & Caldwell (1984) Time & Instructional Improvement: a Research & Development based approach.

ENGAGEMENT RATE FORM		Part of class observed:
		Beg. ___
		Mid. ___
	Grade:	End. ___
Subject:	Date:	Learners present:
School:	Coder:	Learners Absent:

TIME	2	4	6	8	10	12	14	16	18
ASSIGNED									
MANAGEMENT/ TRANSITION									
SOCIALISING									
DISCIPLINE									
UNOCCUPIED/ OBSERVING									
OUT OF ROOM									
TOTAL UNENGAGED									
ENGAGED									

TIME	20	22	24	26	28	30	TOTAL	ENGAGEMENT RATE
ASSIGNED								
MANAGEMENT/ TRANSITION								ENGAGED / ASSIGNED
SOCIALISING								
DISCIPLINE								
UNOCCUPIED/ OBSERVING								
OUT OF ROOM								
TOTAL UNENGAGED								
ENGAGED								

REFERENCES:

Anderson, L.W. (1981) 'Instruction and Time-on-Task: a Review', *Journal of Curriculum Studies*, 13(4), 289-303

Anderson, L.W. (1984) *Time and School Learning*, London & Canberra: Croom Helm

Anderson, L.W. (1984a) 'Attention, Tasks & Time' in L.W. Anderson (ed.) *Time and School Learning*, London & Canberra: Croom Helm

Anderson, L.W. (1984b) 'Instruction and Time-on-Task: A Review' in L.W. Anderson (ed.) *Time and School Learning*, London & Canberra: Croom Helm

Anderson, L.W. (1984c) 'An Introduction to Time and School Learning' in L.W. Anderson (ed.) *Time and School Learning*, London & Canberra: Croom Helm

Anderson, L.W. (1995) 'Time, Allocated and Instructional'. *International Encyclopedia of Teaching and Teaching Education*, Second Edition, London: Pergamon

Anderson, L.W. (1995) 'Opportunity to Learn', *International Encyclopedia of Teaching and Teaching Education*, Second Edition, London: Pergamon

Anderson, L.W. & Scott, C.C. (1978) 'The Relationship Among Teaching Methods, Student Characteristics, and Student Involvement in Learning', *Journal of Teacher Education*, 29(3), 52-7

Arlin, M. (1979) 'Teacher Transitions Can Disrupt Time Flow in Classrooms', *American Educational Research Journal*, 16, 42-56

Bell, J. (1993) *Doing Your Research Project*, Second Edition, Buckingham: Open University Press

Bloom, BS. (1976) *Human Characteristics and Student Learning*, New York: McGraw-Hill

Buckland, P & Fielden, J. (1994) Public Expediture on Education in South Africa, 1987/8 to 1991/2: An Analysis of the Data. Johannesburg: Centre for Education Policy Development

Burns, R.B. (1979) 'Mastery Learning: Does it Work?' *Educational Leadership*, 37, 110-113

Caroll, JB (1963) A Model for School Learning, Teachers' College Record, 64, 723-733

Charlton, T., Lovemore, T. & Jones, K. (1995) 'Teacher Behaviour and Pupil on-Task levels in First and Middle Schools on St. Helen, South Atlantic', *Therapeutic Care and Education*, 4, 37-43

Creemers, B.P.M. (1994) 'Developments in the Educational Effectiveness Research Programme', *International Journal of Educational Research*, 21, 121 –231

Creemers, B.P.M. (1994*) The Effective Classroom*, London: Cassell

Denham, C. & Lieberman, A. (Eds.) (1980) *Time to Learn*, Washington DC: National Institute of Education

Dunken, M.J. (1986) *International Encyclopedia on Teaching and Teaching Education*, London: Pergamon

Ellison, L. (1990) Effective Time Management in B. Davies *et al Education Management in the 1990's*, London: Pergamon

Filby, N.N. & Cahen, L.S. (1977) *Teaching Behaviour and Academic Learning Time in the A-B Period, Technical Note V-1b*, San Francisco: Far West Laboratory for Educational Research and Development

Fisher, C.W. (1978) 'Teaching Behaviours, Academic Learning Time, and Student Achievement: An Overview of Phase III-B of the Beginning Teacher Evaluation Study'. Paper presented at the Annual Meeting of American Educational Research Association, Toronto

Fisher, C.W. (1995) 'Academic Learning Time' in L.W. Anderson (ed.) *International Encyclopedia of Teaching and Teaching Education*, Second Edition, London: Pergamon

Fisher, C.W., Filby, N., Marliave, R., Cahen, L., Dishaw, L., Moore, J. & Berliner, D. (1980) *Teaching and Learning in the Elementary School: A Summary of the Beginning Teacher Evaluation Study*, Report VII-1, San Francisco: Far West Laboratory for Educational Research and Development

Frederick, W.C., Walberg, H.J. & Rasher, S.P. (1979) 'Time Teacher Comments, and Achievement in Urban High Schools', *Journal of Educational* Research, 73(1), 63-5

Government Gazette, vol. 377, no. 17579. Act no. 84/1996: South African Schools Act, 1996

Good, T.L. & Grouws, D.A. (1979) 'The Missouri Mathematics Effectiveness Project: an Experimental Study in Fourth Grade Classrooms'. *Journal of Educational Psychology*, 71(3), 355-62

Gump, P.V. (1976) *The Classroom Behaviour Setting: Its Nature and Relation to Student Behaviour*, Lawrence, Kansas: Department of Psychology, University of Kansas, (ERIC ED 015 515)

Hardy, C. (1993) 'Teacher Communication and Time on-Task', *Research in Education*, 49, 29-38

Huitt, W.G. & Caldwell, J.H. (1984) 'Time and Instructional Improvement: a Research and Development based approach' in L.W. Anderson (ed.) *Time and School Learning.* London & Canberra. Croom Helm

Hunter & Russell (1977) How can I plan More Effective Lessons? *Instructor*, 87(2), 75-6,88.

Husen, T & Postlethwaite, T. (1988) *The International Encyclopedia of Education.* Oxford: Pergamon

Knight, B. (1989) *Managing School Time*, London: Longman

Kounin, J.S. (1970) *Discipline and Group Management in Classrooms*, New York: Holt, Rinehart & Winston

Kounin, J.S. & Sherman, L.W. (1979) 'School Environments as Behaviour Settings', *Theory into Practice*, 18, 145-9

Medley, D.M. (1977) *Teacher Competence and Teacher Effectiveness*, Washington DC: American Association of Colleges for Teacher Education

Meyer, S. (1998) 'Efficiency in Education: The problem of technicism', *Educational Philosophy and Theory*, 3, Mimeo

Meyer, S. (1996) *The Quality of Schooling in South Africa: Some Policy Issues,* Auckland Park, Edupol, NBI, Unpublished document

Reimers, F. (1993) 'Time and Opportunity to Learn to learn in Pakistan's Schools: Some lessons on the links between Research and Policy', *Comparative Education*, 29(2), 201-12.

Rich, H.L. & McNellis, M.J. (1987-8) '*A Study of Academic Time-on-Task in the Elementary School'. Educational Research Quarterly*, 12 (1), 37-45

Roshenshine, B. & Furst, N. (1973) 'The Use of Direct Observation to Study Teaching', Chicago: Rand McNally

Roshenshine, B. (1976) 'Recent Research on Teaching Behaviours and Student Achievement', *Journal of Teacher Education*, 23(1), 61-4

Ross, R.P. (1980) 'Modification of space in Open-plan Schools: An Examination of the Press Toward Synomorphy' in R.R. Stough and A. Wandersman (Eds) *Optimizing Environments: Research, Practice and Policy.* Washington, DC: Environmental Design Research Association

Schulman, L.S. (1986) 'Paradigms and Research Programs in the Study of Teaching: A Contemporary Perspective' in M.C. Witrock *Handbook on Research on Teaching*. Third Edition. New York: Simon & Schuster Macmillan

Sedibe, K. (200O: 11) 'How much can we learn from only studying the best?' *Educators Voice*, February/March 2000, 4, 1

Sergiovanni, T.J. *et al* (1980) *Educational Governance and Administration*, New Jersey: Prentice Hall Inc. Englewood Cliffs

Slavin, R.E. (1994) 'Quality, Appropriateness, Incentive, and Time: A Model for Instructional Effectiveness', *International Journal of Educational Research*, (21), and 121-231

Smyth, W.J. (1984) 'Time, Achievement and Teacher Development' in L.W. Anderson (1984) *Time and School Learning*, London & Canberra: Croom Helm

Smyth, W.J. (1995) 'Time' in L.W. Anderson *International Encyclopedia of Teaching and Teacher Education*, Second Edition, London: Pergamon

South Africa. Department of Finance: Growth, Employment and Redistribution, A Macro-Economic Strategy: Summary. Pretoria: Department of Finance, 1996

South Africa. Financial & Fiscal Committee. A Financial & Fiscal Committee Report on Public Expenditure on Basic Social Services in South Africa. Johannesburg. Financial and Fiscal Committee, 1998

Tedesco, J.C. (1997) 'The Use of Time in the Classroom' in *Educational Innovation and Information*, Geneva: International Bureau of Education, 92,1

Windham, D.M. & Chapman, D.W. (1990) *The Evaluation of Educational Efficiency: Constraints, Issues and Policies*, Connecticut: JAI Press Inc.

World Bank (1990) Primary Education. A World Bank Policy Paper (Washington, DC, World Bank)

Worthern, B.R., Van Dusen, L.M. and Sailor, P.J. (1994)' A Comparative Study of the Impact of Integrated Learning Systems on Students' Time on Task', *International Journal of Educational Research*, 21, 25 –52